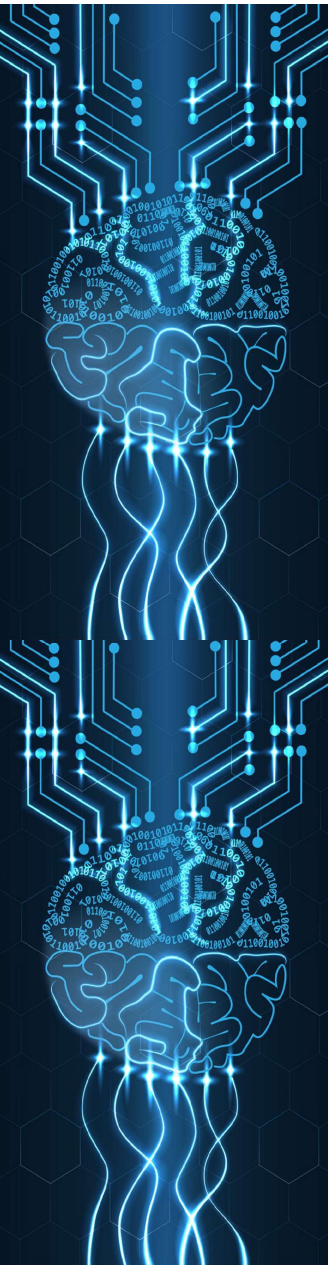


SAILab

Siena Artificial Intelligence Lab

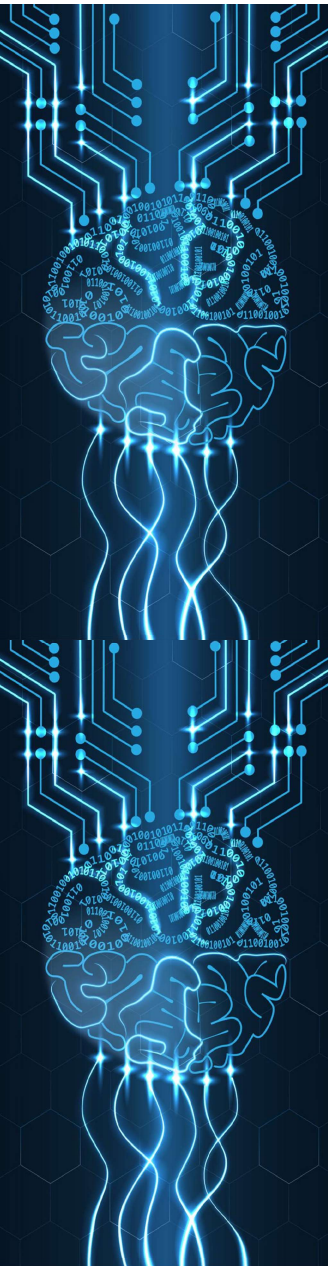
Artificial Intelligence in Healthcare

Siena, 25 Febbraio 2020



SAILab – Siena Artificial Intelligence Lab

- ✱ SAILab (originally Siena AIRGroup) dates back to the mid nineties, when a small group of AI researchers, headed by Prof. Gori, moved from the University of Florence to the new born Engineering Faculty of the University of Siena
- ✱ Since then the AI research group has grown steadily, with the addition of new researchers and the acquisition of five PhD students, on average, per year



SAILab – Siena Artificial Intelligence Lab

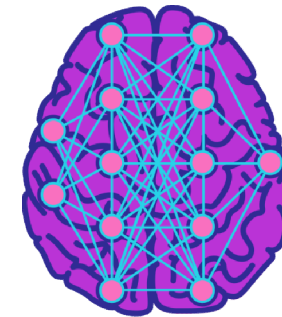
- ✱ SAILab is actually composed by more than 30 persons
- 9 Staff (3 Full Professors, 2 Associate Professors, and 5 Researchers)
 - 5 Postdocs
 - 16 PhD Students (Engineers, Mathematicians, Biologists)
 - 6 Affiliates



SAILab – Siena Artificial Intelligence Lab

🦋 Main research topics

- Machine Learning for Structured Data
- Deep Learning
- Learning from Constraints



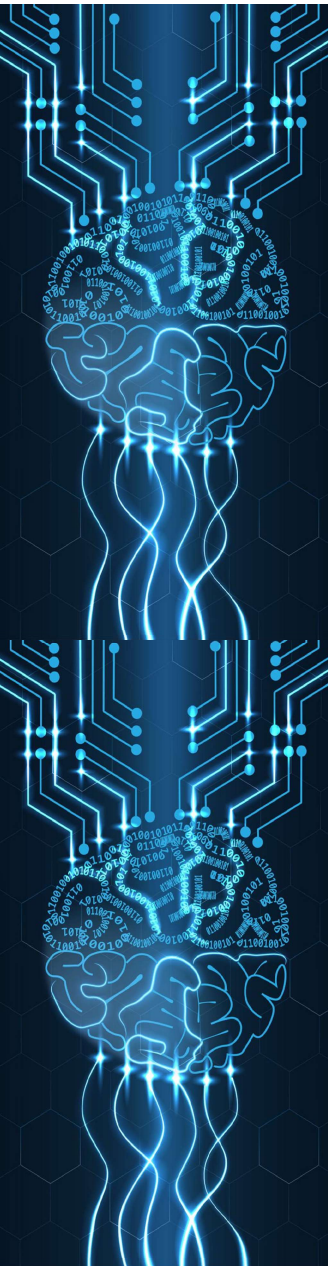
🦋 Applications

- Bioinformatics
- Computer Vision
- Natural Language Processing (QuestIT, 2008)



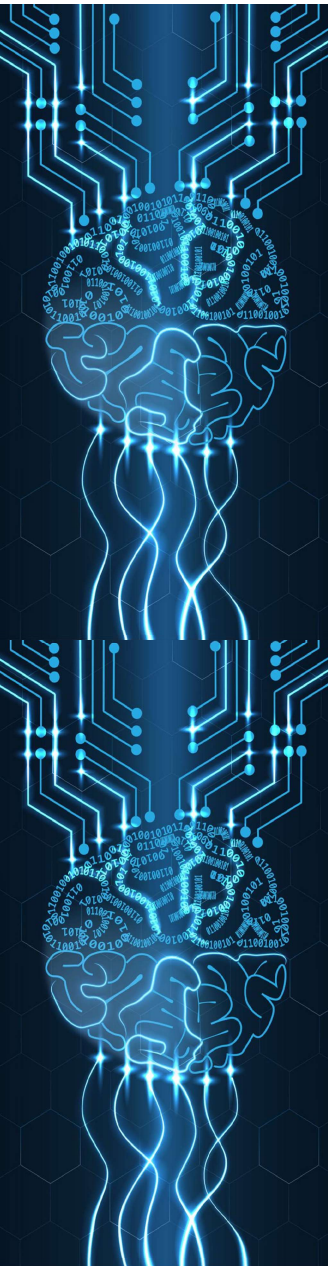
entities learning
relationships
conversation agent
characters life-long knowledge
SBT chatbots ANN
FOL words
stream embeddings
sub-symbolic sentences morphology
extraction





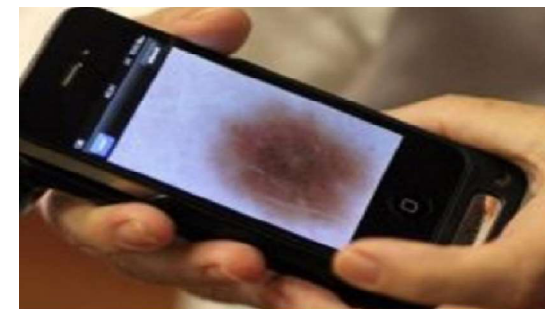
Automatic image diagnostics

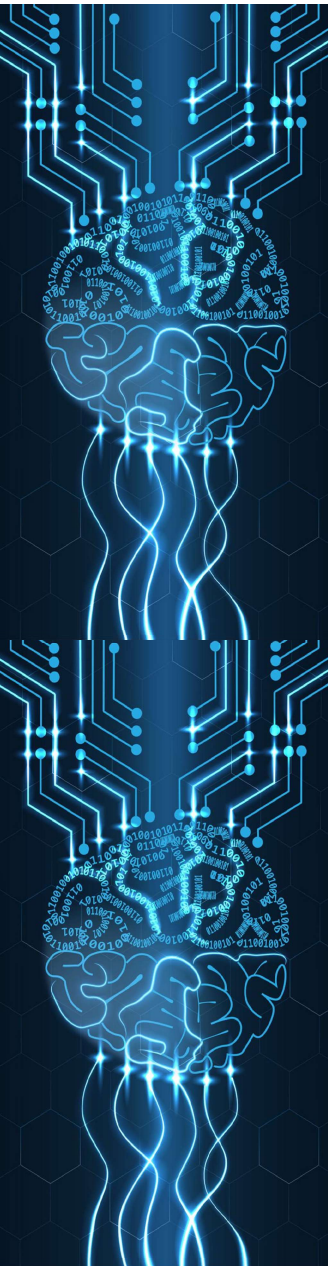
- ✧ Reporting of urine culture tests (colony count and bacterial strain classification)
- ✧ Prediction of malignant skin lesions
- ✧ Diagnosis of neurodegenerative diseases and prediction of prostate and lung cancer based on NMR images
- ✧ Analysis of retinal images



Automatic prediction of malignant skin lesions

- ✧ Deep learning for the classification of dysplastic nevis and melanomas
- ✧ Creation of a skin lesion dataset collected from seven leader dermatological centers of Southern Europe
- ✧ Just sending a photo (captured with a smartphone) will allow a preventive diagnosis of the skin lesion, together with enriching the dataset
- ✧ In collaboration with the Dermatology Department of Le Scotte Hospital (Prof. Pietro Rubegni)





THANKS
for your attention

